

Amended claims

1. Arrangement for optical evaluation of an object array (1), comprising
 - a detector array (7),
 - a microlens array (2), which is disposed in front of the object array (1), as viewed in the direction of the detector array (7),
 - a field lens (3), which is disposed in front of the object array (1), as viewed in the direction of the detector array (7),
 - a light source (15), the radiation of which is coupled in by means of a beam splitter (8) between the field lens (3) and an objective (6),
 - wherein the objective (6), together with the field lens (3), simultaneously images all pupils of the microlens array (2) onto the detector array (7).
2. An arrangement as claimed in Claim 1, wherein the field lens (3) and a further lens (11) form a telescopic arrangement which illuminates the object array (1) with light from the light source (15).
3. An arrangement as claimed in any of the preceding Claims, comprising a diaphragm (4a) disposed between the field lens (3) and the objective (6), wherein the beam splitter (8) is located between the diaphragm (4a) and the field lens (3).
4. An arrangement as claimed in any of the preceding Claims, wherein the field lens (3) and the objective (6) effect telecentric imaging of the pupil plane of the microlens array (2) onto the detector array (7).
5. An arrangement as claimed in any of the preceding Claims, wherein one or more reflecting elements (17, 18) for folding the beam path for illumination and/or detection are provided between the field lens (3) and the diaphragm (4a).
6. An arrangement as claimed in any of the preceding Claims, wherein the object array (1) is slideable, at least vertically to the axis of illumination.
7. An arrangement as claimed in any of the preceding Claims, wherein the light source (15) is intermittently switchable and a detection synchronized to the illumination clock, preferably a deferred detection, is possible so as to allow a time-dependent fluorescence measurement.
8. An arrangement as claimed in Claim 7, comprising a flash lamp as the light source (15).

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9. An arrangement as claimed in any of the preceding Claims, wherein the microlens array (2) can be swivelled out of the beam path for observing the entire object array (1) and/or is exchangeable for adjustment to different measuring applications.
10. An arrangement as claimed in any of the preceding Claims, wherein the light source (15) can be switched off for luminescence detection and/or a coupling element (8) for coupling in the radiation of the light source (15) can be swivelled out.
11. An arrangement as claimed in any of the preceding Claims, wherein a second detector array is disposed behind the object array (1) in the illumination direction for absorption measurement.
12. An arrangement as claimed in any of the preceding Claims in a combined device for measuring at least one of the following phenomena on the object array (1): fluorescence, time-dependent fluorescence, luminescence, and absorption.
14. The use of an arrangement as claimed in any of the Claims 1 to 11 as a reader for microtiter plates.